Taka-Aki Sato

Serial No.: 10/092,138 Filed: March 6, 2002

Page 2

1. (currently amended) A method of preparing a protein array based on biochemical protein-protein interaction, comprising the steps of:

(a) depositing on a substrate an array of a first protein in white the first protein comprising a PDZ domain; and

(b) applying a second protein, which comprises an amino acid sequence (S/T)-X-(V/I/L) 1COOH, to the first protein array, the amino acid sequence (S/T)-X-(V/I/L)-COOH of the second protein binding to the PDZ domain of the first protein,

wherein each hyphen represents a peptide bond, each parenthesis encloses amino acids which are alternatives to one other, each slash within such parentheses separates the alternative amino acids, and the X represents any amino acid which is selected from the group consisting essentially of alanine, cysteine, aspartic acid, glutamic acid, phenylalanine, glycine, histidine, isoleucine, lysine, leucine, methionine, asparagine, proline, glutamine, arginine, serine, threonine, valine, tryptophan and tyrosine.

2. (original) The method of claim 1, wherein the amino acid sequence (S/T)-X-(V/I/L) is fused to the C-terminal of the second protein.

Claim 3 (canceled).

4. (original) The method of claim 1, wherein the first protein deposited in step (a) is in a soluble buffer.

5. (original) The method of claim 1, wherein the first protein deposited in step (a) is immobilized in a gel.

6. (original) The method of claim 1, wherein the substrate includes a plurality of microwells contained therein, and the first protein is deposited in step (a) into the microwells.

Taka-Aki Sato

Serial No.: 10/092,138 Filed: March 6, 2002

Page 3

- 7. (original) The method of claim 1, wherein the substrate includes a glass plate, and the first protein array is printed onto the glass plate in step (a).
- 8. (original) The method of claim 1, wherein the substrate includes a glass plate and a plurality of gel pads on the glass plate, and the first protein is deposited in step (a) onto the gel pads.
- 9. (original) The method of claim 1, wherein the first protein is deposited on the substrate by a robot.

Claims 10-13 (canceled).

- 14. (currently amended) A method of preparing a protein array, comprising the steps of:
- (a) depositing on a substrate an array of first proteins, each first protein comprising a PDZ domain corresponding to the first protein; and
- (b) applying a second protein, which comprises an amino acid sequence (S/T)-X-(V/I/L)-COOH, to the array of first proteins, the amino acid sequence (S/T)-X-(V/I/L)-COOH of the second protein, for each of the first proteins, binding to the PDZ domain of the first protein,

wherein each hyphen represents a peptide bond, each parenthesis encloses amino acids which are alternatives to one other, each slash within such parentheses separates the alternative amino acids, and the X represents any amino acid which is selected from the group comprising the twenty naturally occurring amino acids.

15. (original) # method of preparing a protein array, comprising the steps of:

3/

Taka-Aki Sato Serial No.: 10/092,138 Filed: March 6, 2002

Page 4

- (a) depositing on a substrate an array of a first protein, the first protein comprising a PDZ domain; and
- (b) applying a plurality of second proteins, each of which comprises a corresponding amino acid sequence (S/T)-X-(V/I/L)-COOH, to corresponding elements of the first protein array, for each of the second proteins, the amino acid sequence (S/T)-X-(V/I/L)-COOH of the second protein binding to the PDZ domain of the first protein in the corresponding array element,

wherein each hyphen represents a peptide bond, each parenthesis encloses amino acids which are alternatives to one other, each slash within such parentheses separates the alternative amino acids, and the X represents any amino acid which is selected from the group comprising the twenty naturally occurring amino acids.

16. (previously presented) A method of preparing a polypeptide array, comprising the steps of:

(a) depositing on a substrate an array of a first polypeptide, the first polypeptide comprising a PDZ domain; and

(b) applying a second polypeptide which comprises an amino acid sequence $(S/T) \times (V/I/L)$ -COOH to the first polypeptide array, the amino acid sequence $(S/T) \times (V/I/L)$ -COOH of the second polypeptide binding to the PDZ domain of the first polypeptide,

wherein each hyphen represents a peptide bond, each parenthesis encloses amino acids which are alternatives to one other, each slash within such parentheses separates the alternative amino acids, and the X represents any amino acid which is selected from the group comprising the twenty naturally occurring amino acids.

17. (currently amended) The method of claim 16, wherein at least one array element also includes an oligonucleotide in addition to the first polypeptide.

Taka-Aki Sato

Serial No.: 10/092,138

Filed: March 6, 2002

Page 5

18. (currently amended) The method of claim 16, wherein at least one array element also includes messenger RNA in addition to the first polypeptide.

19. (currently amended) The method of claim 16, wherein at least one array element also includes DNA in addition to the first polypeptide.

20. (currently amended) The method of claim 16, wherein at least one array element also includes a sugar in addition to the first polypeptide.